

Appl. No. 09 / 973,537  
Comm. Dated September 15th, 2005  
Reply To Office action of June 22nd, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-7 (CANCELED)

8 (NEW). A soliton transmission method, comprising:

forming a group of two or more partially overlapping short pulses, said pulses being electromagnetic radiation pulses, such as laser light pulses, and having a significantly same wavelength to stay as a group;

transmitting data by sending such pulse group(s) as solitons, the data being encoded in said pulse groups by modulating:

- (a) individual pulses in a said pulse group,
- (b) and / or, the pulses of a said pulse group as a group;

receiving said pulse groups and decoding the data carried by them.

9 (NEW). A soliton transmission method according to claim 8, comprising:

wherein individual pulses in a said pulse group are modulated by using one or more of the following:

- (a) position modulation,
- (b) phase modulation,
- (c) width modulation,
- (d) amplitude modulation,
- (e) polarization modulation;

wherein a said pulse group itself is modulated by using one or more of the following:

- (a) position modulation,

- (b) phase modulation,
- (c) width modulation with respect to the width of said pulse group,
- (d) width modulation with respect to the average width of the pulses in said pulse group,
- (e) amplitude modulation with respect to the highest amplitude of the pulses in said pulse group,
- (f) amplitude modulation with respect to the average amplitude of the pulses in said pulse group,
- (g) pulse number modulation with respect to the number of pulses in said pulse group;

wherein if individual pulses in a said pulse group are not polarization modulated, then said pulse group itself is optionally modulated with polarization modulation in addition to other used modulations;

wherein if said (g) type pulse number modulation is used, then the smallest number of pulses in a group is optionally one.

10 (NEW). A soliton transmission method according to claim 8, comprising:

using said pulse groups as components of data packets in packet based networks, like the Internet.

11 (NEW). A soliton transmission method according to claim 10, comprising:

switching optically said pulse group based data packets with respect to the polarization states of the pulses in a pulse group.

12 (NEW). A soliton transmission method according to claim 10, comprising:

using the following packet switching method for switching said pulse group based data packets:

a node computer sampling packets from incoming packet traffic, reading certain property(ies) of the sampled packets and predicting on the basis of said sampled property information the intermediate and / or final delivery addresses of the non-sampled packets;

the node computer switching the non-sampled packets according to the respective delivery address predictions to the appropriate output ports.

13 (NEW). A soliton transmission method according to claim 10, comprising:

using the following packet switching method for switching said pulse group based data packets:

the header or other section of a packet containing occurrence information about certain subsequent packet(s) in the packet train which have certain intermediate or final delivery address(es), or certain other property(ies);

a node computer switching said appointed packets according to such advance knowledge of their properties to the appropriate output port(s).

14 (NEW). A soliton transmission method according to claim 10, comprising:

using the following packet switching method for switching said pulse group based data packets:

the header or other section of a packet containing a referring pointer to:

- (a) a property of a preceding packet in the same packet train,
- (b) or, to a property in an index of the most frequent packet properties having occurred in a packet traffic between two switching nodes carrying also said packet;

said property being an intermediate or final delivery address, or other property;

a node computer switching said packet to the appropriate output port according to said referred property.

15 (NEW). A packet switching method for packet based networks, especially for wide area networks like the Internet, comprising:

a node computer sampling packets from incoming packet traffic, reading certain property(ies) of the sampled packets and predicting on the basis of said sampled property information the intermediate and / or final delivery addresses of the non-sampled packets;

the node computer switching the non-sampled packets according to the respective delivery address predictions to the appropriate output ports.

16 (NEW). A packet switching method according to claim 15, comprising:

wherein the node computer reads / resolves one or more of the following properties of a sampled packet:

- (a) the delivery address,
- (b) the source address,
- (c) the delivery route,
- (d) the content type,
- (e) or, other packet properties.

17 (NEW). A packet switching method according to claim 15, comprising:

wherein the node computer reads only partly a sampled packet property.

18 (NEW). A packet switching method according to claim 15, comprising:

wherein the node computer intentionally arranges the packets going to a specific output port so that their mutual positions in a packet train follow certain pattern(s) with respect to their intermediate or final delivery addresses, or other properties.

19 (NEW). A packet switching method according to claim 18, comprising:

wherein the node computer reserves an own packet channel in a packet train going to a specific output port for each category of packets with a certain degree of predictability of intermediate or final delivery addresses, or other properties.

20 (NEW). A packet switching method for packet based networks, especially for wide area networks like the Internet, comprising:

a node computer reading / resolving the source address, content type or other property of a packet, which is not a delivery address;

the node computer switching said packet to the appropriate output port according to said read property.

21 (NEW). A packet switching method according to claim 20, comprising:

wherein said read property is used together with the intermediate or final delivery address of said packet to determine the appropriate output port for said packet.

22 (NEW). A packet switching method for packet based networks, especially for wide area networks like the Internet, comprising:

the header or other section of a packet containing occurrence information about certain subsequent packet(s) in the packet train which have certain intermediate or final delivery address(es), or certain other property(ies);

a node computer switching said appointed packets according to such advance knowledge of their properties to the appropriate output port(s).

23 (NEW). A packet switching method according to claim 22, comprising:

wherein the node computer updates said occurrence information to be used by the next switching node.

24 (NEW). A packet switching method for packet based networks, especially for wide area networks like the Internet, comprising:

the header or other section of a packet containing a referring pointer to:

- (a) a property of a preceding packet in the same packet train,
- (b) or, to a property in an index of the most frequent packet properties having occurred in a packet traffic between two switching nodes carrying also said packet;

said property being an intermediate or final delivery address, or other property;

a node computer switching said packet to the appropriate output port according to said referred property.

25 (NEW). A packet switching method according to claim 24, comprising:

wherein the node computer updates said referring pointer if necessary.

.....